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**MONTANA  
ENERGY  
OFFICE**



**"PEOPLE MAKE SOLAR WORK"**

**THE MONTANA SOLAR  
PUBLIC OPINION SURVEY**



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**RESULTS AND ANALYSIS OF  
THE MONTANA SOLAR  
QUESTIONNAIRE**

**Prepared by  
Jan Konigsberg**

**Montana Energy Office  
Now Incorporated In  
Montana Energy Division  
Department of Natural Resources and Conservation**

## ACKNOWLEDGEMENTS

I wish to acknowledge the following individuals for their help in the preparation of this analysis: Randy Moy, Paul Cartwright and Rick Itami of the Montana Energy Division; John Fitzpatrick of the Governor's Budget and Program Planning Office and Louis Hayes of the Department of Political Science, University of Montana. I take full responsibility for the analysis and for conclusions drawn from this analysis.

## PREFACE

*ENERGY* is definitely an important issue in Montana. Energy issues have spurred the formation of citizen groups around the state, and have become the focus of healthy political controversy. No politician neglects to speak about energy and several state agencies are involved with different energy programs. These energy programs can be classified into six areas:

- Energy regulatory programs, such as rate making by the Public Service Commission.
- Energy related impact programs, such as impact assistance provided by the Coal Board.
- Energy policy and planning programs, such as the emergency fuel allocation program by the Governor's Office.
- Energy conservation programs, such as the home energy audit by the Montana Energy Division, formerly the Montana Energy Office.
- Alternative/renewable energy programs, such as the Montana Alternative Renewable Energy Sources Program managed by the Department of Natural Resources and Conservation.
- Energy taxation programs, such as the coal severance tax by the Department of Revenue.

The recent reorganization (May, 1978) of the Montana Energy Office and Energy Planning Division of the Department of Natural Resources and Conservation (DNRC) to form the Executive's Energy Policy Office and the Montana Energy Division of DNRC will improve the coordination of energy programs and the State's energy planning and policy functions.

Historically Montana's involvement in energy has revolved around conventional energy sources such as coal and petroleum, but during the past few years state government has become increasingly involved with solar energy. The first push for solar energy in Montana did not come from state government alone, however, but also from the grass roots—farmers, ranchers, businessmen, concerned citizens and local government people. In 1974, the Northern Plains Resource Council, a citizen group based in Billings and concerned with coal development in Eastern Montana, chartered the Alternative Energy Resource Organization (AERO) to explore the potential of renewable energy sources. The *AERO Sun-Times*, newsletter of AERO, announces that it comes "from the heart of the Fort Union Solar Deposit and Wind Reserves". Since that time awareness across the state has grown that Montana's "solar deposit" may be much more valuable and benign than its much heralded and demanded coal deposits.

During the last three years, interest and activity in solar energy has mushroomed. In 1975, the legislature passed Senate Bill 86 which established the Alternative Renewable Energy Sources Program. Since 1976, the program has funded 129 projects with grants totalling nearly \$1.7 million. In addition, there are many other projects which have been self-financed. Although most of the projects are concentrated in five counties (Missoula, Ravalli, Cascade, Lewis and Clark, and Gallatin), there are solar installations in at least 30 other counties. There are many active solar systems which use collectors for space heating and for domestic hot water. Solar collectors are also heating swimming pools. Solar reliant greenhouses are sprouting up as more people choose to produce their own food year-round. Trailer houses have been retrofitted with passive and active solar systems. An earth covered conference center will be constructed in Missoula. A highway restroom and a forest service radio repeater are powered by photovoltaic (solar) cells. Researchers are experimenting with collector designs, investigating bio-conversion efficiency, and gathering solar radiation and wind data around the state. Three organizations are or will soon be manufacturing solar devices, while nearly a dozen businesses presently retail solar equipment. Virtually all this activity has occurred during the last three years and shows no sign of slowing down.

As a result of the state grant program, many important renewable energy projects are now found within Montana. These efforts to date are most encouraging; however, the staff of the Renewable Energy Sources Program now sees a need for greater direction and definition to future demonstration and research projects. Presently, active solar systems are well developed but such important systems as wind and passive solar are not. In order to assure orderly development of all forms of renewable energy, the Program intends to request proposals for specific types of systems and research in addition to funding unsolicited proposals as has been done in the past.

The concern with long-range planning in solar energy began last year through the efforts of the Montana Solar Planning Committee in conjunction with the Montana Energy Office and the Department of Energy's Solar Planning Office West located in Denver. The Montana Solar Plan was completed in March, 1978. The Solar Plan embraces a guiding philosophy as well as a set of solar programs. The philosophy emphasizes the value of decentralized, small-scale, renewable energy systems. The programs stress information dissemination and outreach as well as technical training and networking to bring all citizens into contact with the essential elements of renewable energy. The Solar Planning Committee has integrated the Plan into the existing governmental structures and organizations of the state to avoid duplication, to insure coordination, and to assure everyone at all levels of government as well as the individual citizen has a vital and recognized role to play to bring about the transition to renewable energy utilization.

To achieve effective participation by people in the State's solar energy effort, Montana's Solar Planning Committee found it necessary to gauge legislators' and citizens' current attitudes and perceptions about renewable energy. To make such an assessment the Committee decided to design and distribute a questionnaire. The results and analysis of the questionnaire follow.





## INTRODUCTION

The Montana Solar Questionnaire stems from an agreement between the Montana Energy Office and Solar Planning Office West to conduct a state-wide public opinion survey for an initial assessment of attitudes toward solar energy.

Specific objectives of the survey included the following:

1. *Determine legislators' willingness to support state legislation to facilitate the development of solar in the state of Montana.*
2. *Determine the public's willingness to support state legislation to facilitate the development of solar in the state of Montana.*
3. *Determine the attitudes about future state energy strategies.*
4. *Assess the sophistication of the public's knowledge about solar energy.*
5. *Determine perceptions of obstacles to solar development in Montana.*
6. *Determine perceptions of incentives to solar development in Montana.*
7. *Measure the support for more energy education in the public schools.*
8. *Measure the support for utilities assessing a special charge for renewable energy users receiving backup power from the utility.*
9. *Determine individuals' willingness to become personally involved in the application of solar energy.*

Under the direction of Professor Ken Tiahart, the survey was mailed and tabulated by the staff of the Statistical Center at the Montana State University in Bozeman on January 13, 1978. On February 17, a reminder postcard was mailed to all 150 Montana state legislators and 2850 Montana residents. The respondents were selected using a scientific random sample from Montana's statewide motor vehicle registration list. Sixty-five legislators and 649 residents responded. The questionnaires were color coded to distinguish between legislators and citizens. The number of returns was sufficient to ensure a 95% confidence level for the total data.

Data analysis included the tabulation of the total number of responses to each question. When questions were analyzed by demographic data, the number of responses in a given category may not have been large enough to show strong statistical validity. The tendencies in opinions in these situations were, however, useful in the preparation of this report. For other observations, it can be assumed that the relationships were statistically significant. Responses from one question were cross-tabulated with responses to another question if the two questions bore some meaningful relationship. This report will include only the most relevant of those cross-tabulations.

## EXPLANATION OF DEMOGRAPHICS

**Area:** The questionnaire was mailed statewide. Each respondent was requested to identify their county or residence. Analysis of the returns shows that the percentage of respondents from each county correlates closely with the county's percentage of the state's total population.

**Age:** The respondents were divided into six age categories. The age groups were: under 20, 20-29, 30-39, 40-49, 50-59, 60 +. The percentage of respondents in each category does not coincide with the percentage of the state's total population.

**Sex:** Respondents were asked to identify their sex. Of those who identified their sex, 83.1% were male and 16.9% were female. These percentages compare with a breakdown of 50.0% male and 50.0% female for the state's total population. This disparity can be partly explained by the fact that registered motor vehicle owners are primarily male.

**Place of Residence:** Each respondent was asked to identify his place of residence. The categories of place of residence were as follows: city over 10,000; town 2,500-10,000; town 1,000-2,500; rural nonfarm; and rural farm. The percentages of respondents in each category correspond closely to the breakdown of the state's total population.

**Home Ownership:** Respondents were asked to indicate if they owned or rented their home. Of those who responded to the question, 91% own their home and 9% rent.

**Energy Consumer Identification:** Respondents were asked to identify both the utility from which they purchase their energy and their primary role as an energy consumer. The utilities which serve Montana customers with the percentage of respondents served by each utility follows: Montana Power Company, 66.1%; Montana-Dakota Utility, 9.1%; Pacific Power and Light, 3.5%; and Rural Electric Co-ops, 17.3%. The categories identifying the respondents' primary role as an energy consumer with the percentage of respondents in each role are: residential consumer, 77.7%; commercial consumer, 5.0%; and agricultural consumer, 14.5%.

# I. THE DEGREE OF SOPHISTICATION OF KNOWLEDGE ABOUT SOLAR ENERGY

## *Proposition Number 2:*

“You have to be an expert to install a solar system in your home.”

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	Public	Legislators
Strongly Agree	7.6%	3.1%
Agree	23.5%	23.1%
No Opinion	9.1%	10.8%
Disagree	38.2%	52.3%
Strongly Disagree	5.9%	3.0%
Don't Know	14.6%	7.7%
No Answer	1.1%	0
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(Total)	(100.0%)	(100.0%)

### OBSERVATIONS:

1. As many as 4 out of 10 of the public respondents and 5 out of 10 legislators disagree with the above proposition. The level of disagreement indicates that many respondents believe that installation of solar energy systems are well within their abilities.

2. When this proposition is compared with the public's schooling the following data emerges:

### How does the person's level of education relate to their response to Proposition Number 2?

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	Grade School	High School	College
Agree	41.3%	24.7%	33.5%
Disagree	28.6%	48.5%	44.9%
No Opinion	9.5%	10.8%	7.8%
No Response	20.6%	16.0%	13.8%
<hr/>			
(Total)	(100.0%)	(100.0%)	(100.0%)

Those with at least a high school education are more likely to disagree with the proposition than those with only a grade school education.

*Proposition Number 3*

**“It will be at least twenty years before this country will possess the technology to make solar feasible for home heating!”**

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	Public	Legislators
Strongly Agree	4.9%	7.7%
Agree	15.4%	16.9%
No Opinion	8.0%	6.2%
Disagree	40.5%	43.1%
Strongly Disagree	20.0%	21.5%
Don't Know	10.0%	4.6%
No Answer	1.2%	0
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(Total)	(100.0%)	(100.0%)

**OBSERVATIONS:**

An overwhelming majority of respondents disagreed with the above proposition. From this response it may be valid, therefore, to infer that the majority of respondents believe the technology for solar heating of homes is feasible in twenty years or less.

*Proposition Number 8:*

**“Please write the appropriate number which you believe best reflects your knowledge about each type of solar system:”  
(Respondents could choose any number 1-5 where No. 1 meant very knowledgeable and No. 5 meant no knowledge.)**

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	Very Knowledgeable		No Knowledge	
	Public	Legislators	Public	Legislators
Active Solar Space Heating	3.2%	12.3%	32.5%	18.5%
Passive Solar Space Heating	3.2%	9.2%	37.1%	18.5%
Solar Domestic Water Heating	4.8%	10.8%	21.0%	7.7%
Geothermal	3.9%	4.6%	28.8%	21.5%
Wind	7.4%	4.6%	16.6%	7.7%
Water	6.3%	9.2%	17.4%	9.2%
Biomass	6.8%	6.2%	26.0%	12.3%

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**OBSERVATIONS:**

1. Referring to the tabulation of responses (No. 8) in the appendix, the majority of all respondents feel they lack knowledge of the various solar energy systems. However, legislators as a group consider themselves slightly more knowledgeable about solar energy than does the public. Since this response only reveals the respondents' self-evaluation, there is no way to know whether legislators who responded are in fact more knowledgeable than the citizens who responded.

2. Wind received the greatest percentage of responses from the public under the most knowledgeable heading, while active space heating received the most responses from legislators under the same heading. However, when legislators' responses under columns No. 1 and 2 (see Appendix, Proposition No. 8) are added together, wind energy received the greatest percentage.

3. Overall knowledge about solar energy systems among those who responded to the survey is lacking. This observation seems to indicate a need for effective public education about solar energy.

**II. OBSTACLES TO AND INCENTIVES FOR SOLAR DEVELOPMENT**

**When asked to indicate the most important obstacle hindering the development of solar energy in Montana, the following responses were given:**

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	Public	Legislators
Utility opposition to solar	15.3%	7.7%
Lack of information about the feasibility of solar energy in Montana	38.8%	43.1%
Cost of converting to solar	21.9%	30.8%
Solar energy is too experimental	7.6%	13.8%
Failure of state and local officials to support solar	3.9%	1.5%
Other	4.5%	1.5%
No Answer	8.0%	1.6%
(Total)	(100.0%)	(100.0%)

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**OBSERVATIONS:**

1. Citizens and legislators perceive lack of information about the feasibility of solar energy in Montana as the most important obstacle to solar development, cost of converting to solar ranks as the second most important obstacle to the development of solar.

2. Only a very small number of citizens and legislators believe solar development in Montana has been delayed by lack of support by public officials.

When asked to indicate the most important factor facilitating the development of solar energy in the state the following responses were given:

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	Public	Legislators
Additional State solar legislation	3.8%	9.2%
Federal solar power legislation	5.7%	7.7%
Public education program about solar	43.5%	38.5%
Certification of solar products according to rigid engineering criteria	5.2%	4.6%
More state and federal grants to develop and demonstrate solar systems	15.6%	16.9%
Support for solar from building trade and financial institutions	11.0%	12.3%
Other	4.3%	7.7%
Don't Know	10.9%	3.1%
<hr/>		
(Total)	(100.0%)	(100.0%)

**OBSERVATIONS:**

1. Citizens and legislators believe that a public education program about solar would be the most important factor to facilitate its development, and that additional grants would be the next in importance.

2. Although citizens and legislators agree on the importance of public education, the content of such a program has yet to be adequately defined. Before the concept of public education about solar energy is promoted by public officials, the contents of such a program as well as the educational methods must be formulated. Moreover, before additional grants are given for solar energy, policy makers need to decide on the types of solar systems that should be developed and demonstrated.

### III. PERCEPTIONS ABOUT DEVELOPING SOLAR ENERGY IN MONTANA

#### *Proposition Number 11:*

“In Montana we should concentrate our efforts in developing the following solar options.”

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	Public	Legislators
Passive Solar Systems	26.1%	47.7%
Domestic Solar Water Heating	48.3%	64.6%
Active Solar Space Heating	43.5%	47.7%
Geothermal	31.9%	27.7%
Wind Energy	58.7%	63.1%
Biomass Energy Systems	27.0%	26.2%
Wood Stove	23.9%	35.4%
Don't Know	15.6%	12.3%

(Since respondents were asked to check as many systems as they wanted, the percentage cited for each system is a percentage of the total number of respondents.)

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#### OBSERVATIONS:

1. Responses from both the public and the legislators show they most favor the development of wind energy and domestic water heating systems. Research tentatively reveals that domestic hot water systems are the most cost effective of all solar systems for Montana now. The economics of wind systems in Montana are not that clear. Large scale generation from wind promises to be economically feasible when compared with the rising costs of electricity generated from coal-fired plants. Small scale wind generation, however, is presently expensive unless most of the system is hand fabricated using used and/or off-the-shelf hardware (e.g., auto parts). Moreover, mass production of small wind systems will lower their costs considerably. A major reason for the support of wind energy development might be because eastern Montana has some of the highest average wind velocities in the nation (Livingston is the second windiest place in the country).

2. When asked to identify (Proposition No. 13) the most important obstacle hindering the development of solar energy in Montana, lack of information received the greatest percentage of responses from both the public and legislators, (43.1% of the legislators and 38.8% of the public—see Appendix for other responses to this question). Similarly, public education about solar received the greatest percentage of responses from both the public and legislators as the factor that would most facilitate the development of

solar in the state (Proposition No. 14). This response is further supported by 70.1% of the public and 81.5% of the legislators agreeing that a *Montana Solar Handbook* would be useful to them (Proposition No. 24).

3. Although the responses cited thus far indicate considerable support for solar energy, the survey does not provide sufficient information to determine the real commitment of the respondents to solar energy. When respondents were asked to choose the type of heating system they would install in their homes today (Proposition No. 10), only 14.8% of the public and 12.3% of the legislators chose a renewable energy system:

What kind of heating system would you install in your home today

	Public	Legislators
Electric Baseboard	14.3%	20.0%
Electric Air	2.9%	4.6%
Gas	18.8%	26.2%
Heat Pump	10.2%	12.3%
Coal	6.8%	7.7%
Oil	4.3%	4.6%
Renewable	14.9%	12.3%
Wood	14.1%	6.1%
Propane	1.7%	0
No Answer	12.0%	6.2%
(Total)	(100.0%)	(100.0%)

When this question was cross-tabulated\* with income the following data emerges:

\* No cross-tabulation in this report incorporates legislators' responses, only the responses from the public are considered.



How does a person's income compare to  
his choice of heating system?

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	Income (In Thousands of Dollars)					
	0-5	5-10	10-15	15-20	20-25	25+
Electric Baseboard	6.5%	15.0%	16.7%	13.3%	14.3%	15.3%
Electric Air	6.5%	1.0%	4.9%	2.3%	2.2%	3.5%
Gas	10.0%	15.0%	16.7%	18.0%	23.1%	31.8%
Heat Pump	6.5%	3.5%	8.0%	14.0%	12.1%	18.8%
Coal	13.0%	6.0%	6.0%	7.0%	7.7%	2.4%
Propane	6.5%	2.0%	0	2.3%	1.1%	0
Oil	6.5%	5.0%	4.8%	1.6%	4.4%	4.7%
Renewable	8.7%	19.0%	16.6%	20.3%	11.0%	11.7%
Wood	21.7%	20.0%	16.0%	10.9%	14.2%	4.7%
No Response	13.0%	14.0%	9.7%	10.2%	10.0%	7.1%

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Although it's difficult to draw any conclusions from this cross-tabulation, those respondents in the middle income seem to be more willing to invest in renewable energy. On the other hand, 73.0% of the public and 64.6% of the legislators responded that they would consider installing a solar device in their home sometime in the future.

4. In addition, 91.2% of the public and 89.2% of legislators agree that Montana's public schools should instruct students in solar energy and the energy crisis (Proposition No. 6). Slightly less support (79.6%, public; 75.3%, legislators) exists for implementing vo-tech training in solar energy (Proposition No. 7).

#### IV. ATTITUDES ABOUT ADDITIONAL SOLAR LEGISLATION

##### Degree of support for additional legislation:

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	Agree		Disagree	
	Public	Legislators	Public	Legislators
Tax Credit for Wood Stoves	52.6%	47.6%	27.9%	35.4%
Increase Tax for Renewable Energy	65.9%	58.5%	12.8%	36.1%
Property Tax Exemption	67.0%	56.9%	15.8%	18.4%
Retrofit Public Buildings	38.4%	29.3%	30.9%	31.3%
Install Solar on New Public Buildings	69.8%	61.6%	12.2%	15.4%
Tax Credit for Passive Designs	60.1%	49.2%	19.6%	28.2%
Increase Percentage of Monies for SB 86 Program	69.2%	53.8%	9.6%	18.5%
Appropriate Funds for Agricultural Solar Application	57.8%	49.2%	21.8%	16.9%

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##### OBSERVATIONS:

In general both the public and legislators are inclined to believe a need exists for state legislation to promote solar development in the state. As indicated in the table above, there is strong support for increasing the percentage of monies to Montana's Renewable Energy Research, Development and Demonstration Program (SB 86). The only legislative option which did not receive substantial support was the proposal to retrofit public buildings with solar systems. These results reveal a willingness to at least re-allocate if not expend more public funds for solar development. However, if the legislature considers additional solar legislation during the next session, funding new or expanded solar programs will face competition from other significant programs.

## V. ATTITUDES TOWARD STATE ENERGY STRATEGY

### *Proposition Number 12:*

“To meet future state energy needs, I favor the following strategy:”

	Public	Legislators
Nuclear: Construction of nuclear plants	15.1%	16.9%
Conservation: Conservation, phase-out coal-fired plants, develop solar systems	18.6%	26.2%
Solar: Rapid development of solar	18.6%	9.2%
Coal: Construction of more coal-fired plants	14.3%	13.8%
MHD: Development of alternative technologies	26.8%	30.8%
No response	6.5%	3.1%
	(99.9%)	(100.0%)

### OBSERVATIONS:

1. For purposes of analysis both the conservation and solar options (see Questionnaire in the Appendix, question No. 12 b & c) represent a solar strategy. Consequently, the responses to both options can be combined to reveal the level of a support for a solar strategy which favors a transition to a renewable energy system in the state with increasingly less dependence on fossil fuels.

When the responses are combined, 37.2% of the public and 35.4% of the legislators support a solar strategy.

It is unlikely that most respondents who favor the solar strategy or the MHD strategy understand either the technology involved or how the transition to a different energy system will be accomplished.

2. When responses to the assertion (Proposition No. 4), “If we learn to use less energy, that doesn’t necessarily mean that we will have to give up a lot of things that are dear to us,” are cross-tabulated with the responses on energy strategy the following percentages result:

	Public	Legislators
Agree	77.7%	84.6%
Disagree	15.1%	10.7%
No Response	7.2%	4.7%
(Total)	(100.0%)	(100.0%)

How do the responses to Proposition No. 4 relate to the responses regarding energy strategy :

**How does a person's choice of energy strategy compare to his attitude about energy use and lifestyle?**

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	Nuclear	Conservation	Solar	Coal	MHD
Agree with Prop. 4	79.6%	82.6%	75.2%	72.0%	83.2%
Disagree with Prop. 4	13.3%	13.2%	19.0%	22.6%	11.7%
No Opinion on Prop. 4	2.5%	2.5%	1.7%	3.2%	2.3%
No Response to Prop. 4	5.1%	1.7%	4.1%	2.1%	3.5%

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Although one would expect that those who favor a nuclear, coal or even an MHD type strategy would be inclined to believe that lowering energy consumption would mean a lower standard of living, the above table does not support such an assumption. In fact, whether or not a respondent agrees or disagrees with the assertion relating energy consumption to life style has little bearing on the state energy strategy the respondent favors.

In addition, cross-tabulating the assertion "If we learn to use less energy, that doesn't necessarily mean that we will have to give up a lot of things that are dear to us." with the categories of age, schooling, type of power consumer and income groups we find that in no case is there a significant difference in response to the assertion between subgroups in each category.

3. When the various energy strategies are cross-tabulated with the categories of schooling, age, income, primary role as an energy consumer and reasons respondent chose to live in Montana, the cross-tabulations suggest that the solar energy strategy receives the greatest support from those with one or more years of college, those between the ages of 20 and 50, as well as those whose primary reason for living in Montana is either outdoor recreational opportunity or community involvement.

The greatest support for construction of more coal-fired plants comes from those with grade school education, from those over 50 as well as those who define their role as a commercial consumer of power.

These observations are extremely tenuous and should not be construed to be conclusive about the relationship between the attitudes of all Montanans regarding state energy policy and the variable cross-tabulated with attitudes such as income and age.

The following tables are the percentages which result when the various energy strategies are cross-tabulated with the categories of schooling, age, income, primary role as power consumer, and reasons respondent chose to live in Montana:

**How does a citizen's level of schooling compare to his choice of energy strategy?**

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	Schooling		
	Grade School	High School	College
Nuclear	14.3%	15.2%	15.8%
Conservation	9.5%	15.2%	23.1%
Solar	11.1%	20.8%	18.9%
Coal	23.8%	14.7%	12.6%
MHD	23.8%	30.7%	25.4%
No Response	17.5%	3.5%	4.8%

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**How does a citizen's age compare to his choice of energy strategy?**

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	Age					
	Under 20	20-29	30-39	40-49	50-60	60+
Nuclear	33.3%	10.4%	11.6%	14.4%	17.0%	18.9%
Conservation	0	32.5%	28.1%	20.8%	10.6%	12.2%
Solar	0	23.4%	19.0%	19.2%	20.6%	16.2%
Coal	0	3.9%	9.9%	10.4%	19.2%	20.3%
MHD	33.3%	23.4%	27.8%	30.4%	31.2%	23.6%
No Response	33.3%	6.4%	4.1%	4.8%	1.3%	8.8%

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**How does a citizen's household income compare to his choice of energy strategy?**

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	Income in \$1,000					
	0-5	5-10	10-15	15-20	20-25	25+
Nuclear	13.0%	13.0%	14.8%	19.5%	8.8%	18.8%
Conservation	23.9%	16.0%	22.2%	20.3%	18.7%	16.5%
Solar	17.4%	20.0%	22.9%	15.6%	21.9%	10.6%
Coal	21.7%	14.0%	11.1%	14.8%	9.9%	20.0%
MHD	13.0%	28.0%	24.3%	26.5%	40.0%	27.1%
No Response	10.9%	9.0%	4.9%	3.1%	0	7.1%

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**How does a citizen's role as an energy consumer compare to his choice of energy strategy?:**

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**Primary Role as a Consumer of Energy**

	Residential	Commercial	Agricultural
Nuclear	17.0%	3.2%	8.9%
Conservation	18.6%	29.0%	16.7%
Solar	18.9%	9.7%	21.1%
Coal	14.1%	25.8%	13.3%
MHD	26.2%	29.0%	33.3%
No Response	5.1%	3.2%	6.7%

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**How does a citizen's reason for living in Montana compare to his choice of energy strategy?:**

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**Reason Living in Montana**

	Rural	Economics	Outdoors	Community
Nuclear	13.7%	17.1%	18.4%	9.5%
Conservation	21.8%	17.6%	22.0%	25.4%
Solar	18.3%	15.3%	19.6%	23.8%
Coal	12.2%	15.9%	9.4%	14.3%
MHD	28.5%	31.1%	26.5%	22.2%
No Response	5.5%	2.9%	4.1%	4.8%

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## SUMMARY AND CONCLUSIONS

The Montana Solar Questionnaire tapped a sample of citizens and legislators for their attitudes toward solar energy. Responses to the questionnaire reveal considerable interest in and support for solar energy in Montana.

A majority of those surveyed support the concept of state legislation to create incentives to promote solar energy development in the state.

Moreover, a majority of all respondents believe that the greatest obstacle to solar development is lack of information about solar. They feel the central strategy for overcoming this obstacle is public education. In particular, respondents demonstrated considerable support for an energy curriculum in the public schools to teach students about the present energy situation and solar energy potential for Montana. The citizens and legislators surveyed also supported implementation of vo-tech training in solar energy. This emphasis on education appears to reflect the respondents' desire for a more thorough grounding in an endeavor they already support. However, the results of the questionnaire do not reveal what the specific content of public education about solar ought to be. Support for vo-tech training, for an energy curriculum in the public schools and for a handbook for information dissemination is merely support for public education vehicles. Further study is required to determine specific educational goals and programs. Moreover, agreement about specific educational programs will probably not be easily attained.

An overwhelming majority of respondents would consider installing a solar device in their homes; a far smaller number would favor a state energy policy committed to a transition to renewable energy sources. This pattern suggests a disparity between the respondents' concepts of personal as opposed to community energy strategies. Although there is insufficient data to determine the exact nature of this disparity, conceivably, those who support solar development in Montana presently interpret solar energy as an adjunct to rather than a replacement for conventional energy systems. Similarly, the present level of understanding and support for solar energy indicates that the respondents see solar as appropriate for individual homes rather than as the core of a statewide energy system. Popular literature on solar energy emphasizes solar system technology and not solar energy policy and planning strategies. This emphasis could be the basis for the disparity between the strong willingness to apply solar to one's home and only limited support for a statewide renewable energy system. Moreover, many respondents may feel that while solar energy is feasible in the residential sector it is not feasible in the commercial and industrial sector.

As citizens around the state become increasingly aware of possibilities for solar energy, support for solar as a viable alternative to centralized conventional energy systems may grow. Clearly, a majority of respondents oppose a policy permitting Montana utility companies to levy special charges for those renewable energy users employing a conventional fuel backup system (e.g., electric baseboard heat) as indicated in question No. 23.

The questionnaire results did reveal that the overwhelming majority of respondents find solar energy to be an attractive idea. Judging from their responses, citizens and legislators alike want to learn more about solar energy and they are entertaining the notion of applying solar energy in their homes. The time has certainly come to take steps not only to increase public awareness of solar energy, but also to facilitate the development of solar throughout the state. The public seems prepared to move and prepared to support state government efforts in the field of solar energy.



*The responses to the Montana Solar Questionnaire suggest certain solar strategies which should be pursued in Montana:*

- 1. Publish a Montana Solar Handbook for statewide distribution (the Montana Energy Division is currently preparing such a handbook for publication in the fall of 1978).*
- 2. Implement an energy curriculum in the public school system.*
- 3. Establish vo-tech training in solar energy.*
- 4. Draft and submit legislation to create incentives for solar development. Legislation should include the following:*
  - a. Allow a tax credit for efficient, wood burning, air-tight stoves that consume about half the wood as the popular Franklin stove or typical fireplace.*
  - b. Increase the tax credit passed by Montana's 1977 Legislature for renewable solar energies from 10 percent to 25-55 percent as other western states have done.*
  - c. Allow a property tax exemption for solar installations.*
  - d. Appropriate funds to retrofit public buildings with solar equipment.*
  - e. Appropriate funds to install solar equipment on new or planned public buildings.*
  - f. Allow a tax credit for passive solar designs in new home construction (e.g., capturing the sun's rays to heat a home through south facing windows).*
  - g. Allocate a greater percentage of monies from Montana's coal severance tax to Montana's Renewable Energy Research, Development and Demonstration Program.*
  - h. Appropriate monies for agricultural uses of solar and wind power like electricity generation, grain drying, irrigation pumping, greenhouses, etc.*
- 5. Fund a study to determine a viable state energy strategy which would consider the feasibility of a statewide energy system based on renewable energy sources.*
- 6. Insure that no Montana utility adopt any rate policy which discriminates against a renewable energy user.*



Appendix:

Questionnaire Tabulations





THOMAS L. JUDGE  
GOVERNOR

State of Montana  
Office of The Lieutenant Governor

MONTANA ENERGY OFFICE  
CAPITOL STATION  
HELENA, MONTANA 59601  
406-449-3940

TED SCHWINDEN  
LIEUTENANT GOVERNOR

January 20, 1978

Dear Fellow Montanan:

The State of Montana, through the efforts of the Montana Energy Office and the Solar Planning Committee, is developing a Montana plan for the optimum utilization of renewable energy. This solar plan will be a comprehensive treatment of alternative renewable energy available from sun, wind, water, biomass, wood and geothermal resources in Montana. This questionnaire has been mailed to Montana legislators and a randomly selected number of Montana citizens.

The information gathered from the questionnaires will reveal the level of interest in solar energy among the citizens of the state and the legislative options which are most desirable for the development of solar energy throughout the state. This information will, then, provide the basis for Montana's solar plan.

I can assure you that your responses will be held in confidence. Please complete the questionnaire and return in the enclosed stamped and self-addressed envelope at your earliest convenience.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ted Schwinden".

TED SCHWINDEN  
Lieutenant Governor

Enc.

## MONTANA SOLAR STUDY

Please indicate if you: Strongly Agree (SA), Agree (A), No Opinion (N), Disagree (D), Strongly Disagree (SD), or Don't Know (DK), to the right of each of the following statements. (The term solar energy means energy received from sun, wind, water, biomass, wood and geothermal resources.)

- |   |    |   |   |   |    |    |
|---|----|---|---|---|----|----|
| 1. Solar energy will pay for itself in the long term because it increases the value of the home and decreases the monthly utility rates. (circle one) | SA | A | N | D | SD | DK |
| 2. You have to be an expert to install a solar system in your home. (circle one)  | SA | A | N | D | SD | DK |
| 3. It will be at least twenty years before this country will possess the technology to make solar energy feasible for home heating. (circle one)      | SA | A | N | D | SD | DK |
| 4. If we learn to use less energy, that doesn't necessarily mean that we will have to give up a lot of things that are dear to us (circle one)        | SA | A | N | D | SD | DK |
| 5. Solar heated houses are unattractive and will not sell in today's housing market. (circle one)   | SA | A | N | D | SD | DK |
| 6. Our public schools should instruct students in solar energy and the present energy crisis. (circle one)  | SA | A | N | D | SD | DK |
| 7. Montana should implement vo-tech training in solar energy (circle one)   | SA | A | N | D | SD | DK |

8. Please circle the appropriate number which you believe best reflects your knowledge about each type of solar system.

very knowledgeable-----no knowledge

Active solar space heating	1	2	3	4	5
Passive solar space heating	1	2	3	4	5
Domestic solar water heating	1	2	3	4	5
Geothermal energy systems	1	2	3	4	5
Wind energy systems	1	2	3	4	5
Water energy systems	1	2	3	4	5
Biomass energy systems (e.g. methane production, wood, gasahol)	1	2	3	4	5

9. If I were to install a solar energy system it would include (circle as many as are appropriate):

- |                                 |                          |
|---------------------------------|--------------------------|
| a. passive solar space heating  | e. wind system           |
| b. active solar space heating   | f. water energy system   |
| c. domestic solar water heating | g. biomass energy system |
| d. geothermal system            | h. don't know            |

10. If I were to install a heating system in my home today, I would install (circle one of the following):

- |                                |   |
|--------------------------------|---|
| a. electric baseboard heating  | f. propane furnace  |
| b. electric forced air furnace | g. fuel oil furnace                                       |
| c. natural gas furnace         | h. renewable energy system (e.g. wind, solar, or biomass) |
| d. heat pump                   | i. wood stove   |
| e. coal fired furnace          | j. don't know   |

11. In Montana we should concentrate our efforts developing the following solar options (circle as many as you prefer).

- |   |                           |
|---|---------------------------|
| a. passive solar systems                | e. wind energy systems    |
| b. domestic solar water heating systems | f. biomass energy systems |
| c. active solar space heating           | g. wood stove             |
| d. geothermal systems                   | h. don't know             |

12. To meet future state energy needs, I favor the following strategy (circle one)

- a. construction of nuclear power plants
- b. a strong conservation program to reduce energy demand; phasing out existing coal and gas fired generating plants; and development of decentralized solar systems.
- c. rapid development of solar systems with no more construction of coal fired generating plants
- d. continued construction of coal fired generating plants with minimal development of solar energy systems
- e. development of alternative technologies such as coal gasification and magneto hydro dynamics (MHD)

**13. Please indicate which of the following you believe to be the most important obstacle hindering the development of solar energy in Montana (check one).**

- utility opposition to solar
- lack of information about the feasibility of solar energy in Montana
- cost of converting to solar
- solar technology is too experimental
- failure of state and local officials to support solar
- other (please specify) \_\_\_\_\_

\_\_\_\_\_ don't know

**14. Please indicate which of the following you believe is the most important factor which would facilitate the development of solar energy in Montana (check one)**

- additional state solar legislation
- federal solar power legislation
- public education program about solar energy
- certification of solar products according to rigid engineering criteria
- more state and federal grants to individuals and citizen groups to develop and demonstrate various solar systems
- support for solar from the building trades and financial institutions

\_\_\_\_\_ other (please specify) \_\_\_\_\_

\_\_\_\_\_ don't know

**Which of the following legislation options would you support at Montana's 1979 Legislature?**

**Please indicate if you: Strongly Agree (SA), Agree (A), No Opinion (N), Disagree (D), Strongly Disagree (SD), to the right of each of the following statements.**

- |  |    |   |   |   |    |
|--|----|---|---|---|----|
| 15. Allow a tax credit for efficient, wood burning, air tight stoves that consume about half the wood as the popular Franklin stove or typical fireplace. (circle one)         | SA | A | N | D | SD |
| 16. Increase the tax credit passed by Montana's 1977 Legislature for renewable solar energies from 10 percent to 25-55 percent as other western states have done. (circle one) | SA | A | N | D | SD |
| 17. Allow a property tax exemption for solar installations. (circle one)   | SA | A | N | D | SD |
| 18. Appropriate funds to retrofit public buildings with solar equipment (circle one)   | SA | A | N | D | SD |
| 19. Appropriate funds to install solar equipment on new or planned public buildings (circle one)   | SA | A | N | D | SD |
| 20. Allow a tax credit for passive solar designs in new home construction (e.g., capturing the sun's rays to heat a home through south facing windows). (circle one)           | SA | A | N | D | SD |
| 21. Allocate a greater percentage of monies from Montana's coal severance tax to Montana's Renewable Energy Research, Development and Demonstration Program. (circle one)      | SA | A | N | D | SD |
| 22. Appropriate monies for agricultural uses of solar and wind power like electricity generation, grain drying, irrigation pumping, greenhouses, etc.. (circle one)            | SA | A | N | D | SD |
| 23. How would you react if a utility company charges a flat monthly rate for homes equipped with solar devices? (circle one)   | SA | A | N | D | SD |

**24. Would a widely disseminated and well illustrated Montana Solar Directory with information for the person interested in solar be of use to you? (circle one)**

Yes    No    No Opinion

**25. Would you consider installing a solar device in your home sometime in the future? (circle one)**

Yes    No    No Opinion

**26. What is your age? (circle one)**

Under 20    20-29    30-39    40-49    50-59    60+

27. Indicate the amount of schooling you have had. (circle one)

Grade school    vo-tech    high school    some college    college degree    advanced degree

28. Do you live in (circle one):

City greater 10,000    Town 2,500-10,000    Town 1,000-2,500    Rural non-farm    Rural farm

29. Indicate the category which best describes your primary role as a consumer of energy. (circle one)

Residential consumer    Commercial consumer    Agricultural consumer

30. Which company provides you with your source of power? (circle one)

Montana Power Company    Montana-Dakota Utility    Pacific Power & Light    Rural Electric Association

31. Do you own/rent your home? (circle one)

32. Please indicate your gross annual household income. (circle one)

\$0-5,000    5,000-10,000    10,000-15,000    15,000-20,000    20,000-25,000    over 25,000

33. What county do you reside in? \_\_\_\_\_

34. Are you male or female? \_\_\_\_\_

35. Please indicate the reason you choose to live in Montana.

- \_\_\_\_\_ rural atmosphere
- \_\_\_\_\_ economic opportunity
- \_\_\_\_\_ outdoor recreational activities
- \_\_\_\_\_ community involvement

36. In an attempt to facilitate the inventory of renewable energies devices in Montana, we request that you provide us with the name and location of any home or building that uses solar, wind, or biomass as an energy source.

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PUBLIC RESPONSE TO SOLAR STUDY  
(649 Respondents)

	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>DK</u>	<u>No Answer</u>
1.	187(28.8)	309(47.6)	32(4.9)	36( 5.5)	6( .9)	68(10.5)	
2.	50( 7.6)	153(23.5)	60(9.1)	248(38.2)	38( 5.9)	93(14.6)	7(1.1)
3.	32( 4.9)	100(15.4)	52(8.0)	263(40.5)	130(21.0)	64(10.0)	8(1.2)
4.	149(23.0)	355(54.7)	16(2.5)	76(11.7)	22( 3.4)	23( 3.5)	8(2.2)
5.	16( 2.5)	35( 5.4)	51(7.9)	309(47.6)	169(26.0)	56( 8.6)	13(2.0)
6.	299(46.1)	293(45.1)	20(3.1)	14( 2.2)	8( 1.2)	6( .9)	9(1.4)
7.	211(32.5)	306(47.1)	55(8.5)	30( 4.6)	13( 2.0)	18( 2.8)	16(2.5)

	Knowledgeable					Unknowledgeable		No Answer
8.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>			
Active	21(3.2)	50( 7.7)	139(21.4)	168(25.9)	211(32.5)	60(9.2)		
Passive	21(3.2)	46( 7.1)	117(18.0)	160(24.7)	241(37.1)	64(9.9)		
Domestic	31(4.8)	95(14.6)	183(28.2)	145(22.3)	136(21.0)	59(9.1)		
Geothermal	25(3.9)	59( 9.1)	155(23.9)	160(24.7)	187(28.8)	63(9.7)		
Wind	48(7.4)	133(20.5)	205(31.6)	103(15.9)	108(16.6)	52(8.0)		
Water	41(6.3)	124(19.1)	186(28.7)	126(19.4)	113(17.4)	59(9.1)		
Biomass	44(6.8)	100(15.4)	126(19.4)	140(21.6)	169(26.0)	70(10.8)		

9.	<u>Passive</u>	<u>Active</u>	<u>Domestic</u>	<u>Geothermal</u>	<u>Wind</u>	<u>Water</u>	<u>Biomass</u>	<u>Don't Know</u>
	107(16.5)	175(27.0)	277(42.7)	45(6.9)	164(25.3)	68(10.5)	104(16.0)	210(32.7)

10.	<u>Baseboard</u>	<u>Electric Air</u>	<u>Gas</u>	<u>Heat Pump</u>	<u>Coal</u>	<u>Oil</u>	<u>Renewable</u>	<u>Wood</u>	<u>Propane</u>	<u>No Answer</u>
	93(14.3)	19(2.9)	122(18.8)	66(10.2)	44(6.8)	28(4.3)	97(14.9)	91(14.1)	11(1.7)	78(12.0)

11.	<u>Passive</u>	<u>Active</u>	<u>Domestic</u>	<u>Geothermal</u>	<u>Wind</u>	<u>Biomass</u>	<u>Wood</u>	<u>Don't Know</u>
	169(26.1)	282(43.5)	313(48.3)	207(31.9)	381(58.7)	175(27.0)	155(23.9)	101(15.6)

12.	<u>Nuclear</u>	<u>Conservation</u>	<u>Solar</u>	<u>Coal</u>	<u>MHD</u>	<u>No Answer</u>
	98(15.1)	121(18.6)	121(18.6)	93(14.3)	174(26.8)	42(6.5)

13.	<u>Utility</u>	<u>Information</u>	<u>Cost</u>	<u>Experimental</u>	<u>Officials</u>	<u>Other</u>	<u>No Answer</u>
	99(15.3)	250(38.8)	141(21.9)	49(7.6)	0	29(4.5)	52(8.1)

14.	<u>Legislation State</u>	<u>Legislation Federal</u>	<u>P.E. Program</u>	<u>Certification</u>	<u>Grants</u>	<u>Trades</u>	<u>Other</u>	<u>No Answer</u>
	24(3.8)	36(5.7)	276(43.5)	33(5.2)	99(15.6)	70(11.0)	27(4.3)	69(10.9)
15.	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>No Answer</u>		
	120(18.5)	221(34.1)	82(12.6)	132(20.3)	49( 7.6)	45(6.9)		
16.	156(24.0)	272(41.9)	98(15.1)	60( 9.2)	23( 3.5)	40(6.2)		
17.	159(24.5)	276(42.5)	74(11.4)	73(11.2)	30( 4.6)	37(5.7)		
18.	50( 7.7)	199(30.7)	151(23.3)	154(23.7)	47( 7.2)	48(7.4)		
19.	111(17.1)	342(52.7)	76(11.7)	52( 8.0)	27( 4.2)	41(6.3)		
20.	91(14.0)	299(46.1)	94(14.5)	96(14.8)	31( 4.8)	38(5.9)		
21.	148(22.8)	301(46.4)	101(15.6)	42( 6.5)	20( 3.1)	37(5.7)		
22.	111(17.1)	264(40.7)	93(14.3)	108(16.6)	34( 5.2)	39(6.0)		
23.	21( 3.2)	98(15.1)	122(18.9)	175(27.0)	203(31.4)	28(4.3)		
24.	<u>Yes</u>	<u>No</u>	<u>No Opinion</u>					
	454(70.1)	145(22.4)	49(7.6)					
25.	<u>Yes</u>	<u>No</u>	<u>No Opinion</u>		<u>No Answer</u>			
	473(73.0)	123(19.0)	4(.6)		48(7.4)			
26.	<u>Under 20</u>	<u>20-29</u>	<u>30-39</u>	<u>40-49</u>	<u>50-59</u>	<u>60+</u>	<u>No Answer</u>	
	6(.9)	77(11.9)	121(18.6)	125(19.3)	141(21.7)	148(22.8)	31(4.8)	
27.	<u>Grade</u>	<u>Vo Tech</u>	<u>High School</u>	<u>Some College</u>	<u>College Degree</u>	<u>Advanced Degree</u>	<u>No Answer</u>	
	63(9.7)	12(1.8)	219(33.7)	161(24.8)	107(16.5)	66(10.2)	21(3.2)	
28.	<u>City</u>	<u>10,000-2,500</u>	<u>2,500-1,000</u>	<u>Rural Non Farm</u>	<u>Rural Farm</u>	<u>No Answer</u>		
	255(39.4)	106(16.4)	50(7.7)	101(15.6)	120(18.5)	16(2.5)		
29.	<u>Residential</u>	<u>Commercial</u>		<u>Agricultural</u>	<u>No Answer</u>			
	511(78.7)	31(4.8)		90(13.9)	17(2.6)			
30.	<u>MPC</u>	<u>MDU</u>	<u>PP&amp;L</u>	<u>REA</u>	<u>No Answer</u>			
	428(66.0)	61(9.4)	21(3.2)	110(17.0)	28(4.3)			
31.	<u>Own</u>	<u>Rent</u>		<u>No Answer</u>				
	547(84.9)	63(9.8)		34(5.3)				
32.	<u>0-5,000</u>	<u>5,000-10,000</u>	<u>10,000-15,000</u>	<u>15,000-20,000</u>	<u>20,000-25,000</u>	<u>25,000+</u>	<u>No Answer</u>	
	46(7.1)	100(15.4)	144(22.2)	128(19.7)	91(14.0)	85(13.1)	55(8.5)	

33. See Print Out

34.	<u>Male</u>	<u>Female</u>	<u>No Answer</u>
	513(79.4)	107(16.6)	26(4.0)

35.	<u>Rural</u>	<u>Opportunity</u>	<u>Outdoor</u>	<u>Community</u>
	344(53.1)	170(26.2)	245(37.8)	63(9.7)

LEGISLATORS' RESPONSES TO SOLAR STUDY  
(65 Respondents)

	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>DK</u>
1.	18(27.7)	25(38.5)	4( 6.2)	8(12.3)	4( 6.2)	6(9.2)
2.	2( 3.1)	15(23.1)	7(10.8)	34(52.3)	2( 3.0)	5(7.7)
3.	5( 7.7)	11(16.9)	4( 6.2)	28(43.1)	14(21.5)	3(4.6)
4.	21(32.3)	34(52.3)	2( 3.1)	6( 9.2)	1( 1.5)	1(2.5)
5.	0( 0)	3( 4.6)	6( 9.2)	30(46.2)	20(30.8)	6(9.2)
6.	26(40.0)	32(49.2)	2( 3.1)	1( 1.5)	1( 1.5)	1(1.5)
7.	14(21.5)	35(53.8)	4( 6.2)	5( 7.7)	5( 7.7)	2(3.1)

8.	Knowledgeable			Unknowledgeable		No Answer
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Active	8(12.3)	9(13.8)	16(24.6)	20(30.8)	12(18.5)	
Passive	6( 9.2)	12(18.5)	16(24.6)	19(29.2)	12(18.5)	
Domestic	7(10.8)	16(24.6)	19(29.2)	18(27.7)	5( 7.7)	
Geothermal	3( 4.6)	13(20.0)	13(20.0)	22(33.8)	14(21.5)	
Wind	3( 4.6)	15(23.1)	20(30.8)	21(32.3)	5( 7.7)	1(1.5)
Water	6( 9.2)	17(26.2)	23(35.4)	13(20.0)	6( 9.2)	
Biomass	4( 6.2)	6( 9.2)	22(33.8)	23(35.4)	8(12.3)	2(3.1)

9.	<u>Passive</u>	<u>Active</u>	<u>Domestic</u>	<u>Geothermal</u>	<u>Wind</u>	<u>Water</u>	<u>Biomass</u>	<u>Don't Know</u>
	23(35.4)	25(38.5)	35(53.8)	2(3.1)	13(20.0)	9(13.8)	8(12.3)	15(23.1)

10.	<u>Baseboard</u>	<u>Electric</u>	<u>Air</u>	<u>Gas</u>	<u>Heat Pump</u>	<u>Coal</u>	<u>Oil</u>	<u>Renewable</u>	<u>Wood</u>	<u>Propane</u>	<u>No Answer</u>
	13(20.0)	3(4.6)	17(26.2)	8(12.3)	5(7.7)	3(4.6)	8(12.3)	4(6.2)	0	4(6.2)	

11.	<u>Passive</u>	<u>Active</u>	<u>Domestic</u>	<u>Geothermal</u>	<u>Wind</u>	<u>Biomass</u>	<u>Wood</u>	<u>Don't Know</u>
	31(47.7)	31(47.7)	42(64.6)	18(27.7)	41(63.1)	17(26.2)	23(35.4)	8(12.3)

12.	<u>Nuclear</u>	<u>Conservation</u>	<u>Solar</u>	<u>Coal</u>	<u>MHD</u>	<u>No Answer</u>
	11(16.)	17(26.2)	6(9.2)	9(13.8)	20(30.8)	2(3.1)

13.	<u>Utility</u>	<u>Information</u>	<u>Cost</u>	<u>Experimental</u>	<u>Officials</u>	<u>Other</u>	<u>No Answer</u>
	<u>Opposition</u>	28(43.1)	20(30.8)	9(13.8)	1(1.5)	1(1.5)	1(1.5)
	5(7.7)						

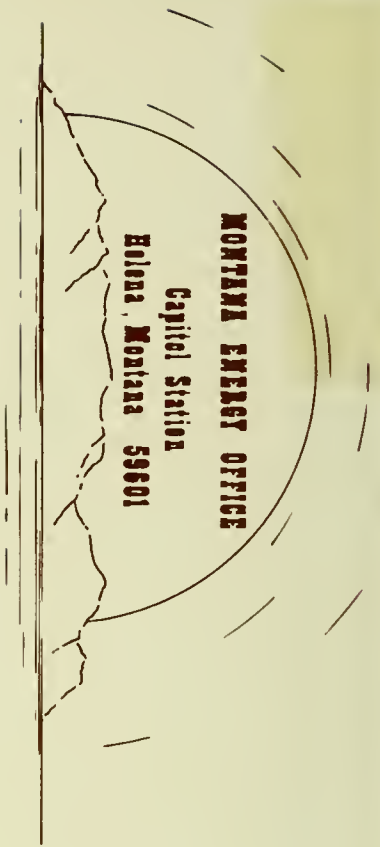
14.	<u>Legislation State</u>	<u>Legislation Federal</u>	<u>P.E. Program</u>	<u>Certification</u>	<u>Grants</u>	<u>Trades</u>	<u>Other</u>	<u>No Answer</u>
	6(9.2)	5(7.7)	25(38.5)	3(4.6)	11(16.9)	8(12.3)	5(7.7)	2(3.1)
	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>No Answer</u>		
15.	9(13.8)	22(33.8)	8(12.3)	15(23.1)	8(12.3)	3(4.6)		
16.	12(18.5)	26(40.0)	9(13.8)	14(21.5)	3( 4.6)	1(1.5)		
17.	13(20.0)	24(36.9)	13(20.0)	10(15.4)	2( 3.1)	3(4.6)		
18.	7(10.8)	12(18.5)	18(27.7)	16(24.6)	5( 7.7)	7(10.8)		
19.	10(15.4)	30(46.2)	13(20.0)	7(10.8)	3( 4.6)	2(3.1)		
20.	5( 7.7)	27(41.5)	11(16.9)	16(24.6)	3( 4.6)	3(4.6)		
21.	8(12.3)	27(41.5)	17(26.2)	8(12.3)	4( 6.2)	1(1.5)		
22.	10(15.4)	22(33.8)	20(30.8)	9(13.8)	2( 3.1)	2(3.1)		
23.	4( 6.2)	12(18.5)	20(30.8)	16(24.6)	10(15.4)	3(4.6)		
	<u>Yes</u>		<u>No</u>		<u>No Opinion</u>			
24.	53(81.5)		9(13.8)		3(4.6)			
25.	42(64.6)		13(20.0)		10(15.4)			
	<u>Under 20</u>	<u>20-29</u>	<u>30-39</u>	<u>40-49</u>	<u>50-59</u>	<u>60+</u>		
26.	0	2(3.1)	12(18.5)	13(20.0)	17(26.2)	21(32.3)		
27.	<u>Grade</u>	<u>Vo Tech</u>	<u>High School</u>	<u>Some College</u>	<u>College Degree</u>	<u>Adv. Degree</u>	<u>No Ans.</u>	
	2(3.1)	0	7(10.8)	19(29.2)	25(38.5)	11(16.9)	1(1.5)	
28.	<u>City</u>	<u>2500-10,000</u>	<u>1000-3500</u>	<u>Non Farm</u>	<u>Rural Farm</u>			
	26(40.0)	11(16.9)	3(4.6)	9(13.8)	16(24.6)			
29.	<u>Residential</u>		<u>Commercial</u>	<u>Agricultural</u>	<u>No Answer</u>			
	44(67.7)		5(7.7)	15(23.1)	1(1.5)			
30.	<u>MPL</u>	<u>MDU</u>	<u>PP&amp;L</u>	<u>REA</u>	<u>No Answer</u>			
	43(66.2)	4(6.2)	4(6.2)	13(20.0)	1(1.5)			
31.		<u>Own</u>		<u>Rent</u>	<u>No Answer</u>			
		63(96.9)		0	2(3.1)			
32.	<u>0- 5,000</u>	<u>5,000- 10,000</u>	<u>10,000- 15,000</u>	<u>15,000- 20,000</u>	<u>20,000- 25,000</u>	<u>25,000+</u>	<u>No Answer</u>	
	0	5(7.7)	15(23.1)	10(15.4)	5(7.7)	27(41.5)	3(4.6)	

33. See Print-Out

34.	<u>Male</u>	<u>Female</u>	<u>No Answer</u>
	54(83.1)	8(12.3)	3(4.6)

35.	Rural	Opportunity	Outdoor	Community
	37(56.9)	23(35.4)	29(44.6)	25(38.5)





**MONTANA ENERGY OFFICE**

**Capital Station**

**Helena, Montana 59601**

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